

IN THE CLAIMS

Claim 1 (original): An apparatus for fractionating gypsum slurry, which is used to produce a gypsum board with a gypsum core covered with a sheet of paper for gypsum board liner, which is provided on the mixer, the mixer being arranged so that calcined gypsum and water are mixed in a mixing area inside of a housing for preparation of the gypsum slurry, and that the gypsum slurry continuously flows from a hollow connector section into a chute section to be fed through a slurry discharge port of the chute section to said sheet of paper for gypsum board liner, and which is used for fractionating a part of the gypsum slurry from said mixer and feeding the fractionated slurry to said sheet of paper: comprising a slurry fractionation port in fluid communication with a slurry delivery conduit, the slurry fractionation port being disposed at said chute section and/or said hollow connector section so as to fractionate the gypsum slurry in said chute section and/or said hollow connector section.

Claim 2 (original): An apparatus as defined in claim 1, further comprising valve means for opening and closing said slurry fractionation port.

Claim 3 (original): An apparatus as defined in claim 2, comprising a casing which encloses the fractionation port and the valve means and which has a slurry delivery port, wherein said slurry delivery conduit is connected to said delivery port so as to be in fluid communication with said the fractionation port through an internal area of the casing.

Claim 4 (currently amended): An apparatus as defined in claim 1

~~one of claims 1 through 3~~, wherein a foam feeding port, which adds foam or foaming agent to the gypsum slurry for regulating density of the slurry, is disposed on said hollow connector section and/or said chute section.

Claim 5 (original): An apparatus as defined in claim 4, wherein said foam feeding port is disposed between said fractionation port and said discharge port.

Claim 6 (original): An apparatus as defined in claim 5, wherein both of said foam feeding port and said fractionation port are disposed on said chute section, and the fractionation port is located, upstream of the foam feeding port in a direction of flow of the slurry.

Claim 7 (currently amended): An apparatus as defined in claim 1 ~~one of claims 1 through 6~~, wherein said fractionation port is disposed on a top wall of said chute section and/or said hollow connector section.

Claim 8 (currently amended): An apparatus as defined in claim 2 ~~or 3~~, further comprising a driving device and drive control means for operating said valve means to open or close.

Claim 9 (currently amended): A method for fractionating gypsum slurry with use of the apparatus as defined in claim 1 ~~one of claims 1 through 8~~, wherein a part of the gypsum slurry in said chute section and/or said hollow connector section is delivered through said fractionation port to said slurry delivery conduit under fluid pressure of the gypsum slurry.

Claim 10 (currently amended): A method for fractionating gypsum slurry with use of the apparatus as defined in claim 1 ~~one of claims 1 through 8~~, wherein a part of the gypsum slurry limited in a content of the foam or foaming agent is delivered through said fractionation port to said slurry delivery conduit.

Claim 11 (currently amended): A method for fractionating gypsum slurry with use of the apparatus as defined in claim 2 ~~one of claims 2, 3 and 8~~, wherein a fluid passage between said slurry delivery conduit and said chute or hollow connector section is periodically closed or opened by closing and opening operation of said valve means so as to prevent growth of mass of set slurry in a fluid passage of the fractionated slurry.

Claim 12 (currently amended): A method for fractionating gypsum slurry with use of the apparatus as defined in claim 2 ~~one of claims 2, 3 and 8~~, wherein pressure of the slurry fractionated through said fractionation port is controlled by said valve means.

Claim 13 (original): A method for producing gypsum boards with use of a mixer for mixing calcined gypsum and water in its mixing area to prepare gypsum slurry, and an apparatus for fractionating the gypsum slurry to be fed to a slurry delivery conduit: comprising a slurry preparing step of feeding the calcined gypsum and water into the mixer to mix them therein for preparation of the gypsum slurry and displacing the gypsum slurry from a hollow connector section to a chute section; a slurry fractionating step of causing a part of the slurry effluent from said mixing area to be fractionated in said chute section and/or said hollow connector section as fractionated slurry, and feeding the fractionated slurry through said conduit to a roll coater and/or a side edge portion of a sheet of paper for gypsum board liner; and a slurry discharging step of discharging a remainder of the gypsum slurry,

from which the fractionated slurry has been fractionated, through a slurry discharge port of the chute section onto a center part of the sheet of paper for gypsum board liner, wherein a core of an edge portion of the gypsum board and/or an interface portion between a core and the sheet of paper for gypsum board liner is formed by said fractionated slurry.

Claim 14 (original): A method as defined in claim 13, wherein foam or foaming agent for regulating density of slurry is mixed into said remainder of the gypsum slurry after the fractionated slurry has been fractionated.

Claim 15 (currently amended): A method as defined in claim 13 ~~or~~ 14, further comprising a fractionated slurry agitating step of agitating said fractionated slurry with use of a slurry agitator.

Claim 16 (canceled)

Claim 17 (new): A method for producing gypsum boards with use of the apparatus as defined in claim 1: comprising a slurry preparing step of feeding the calcined gypsum and water into said mixer to mix them therein for preparation of the gypsum slurry and displacing the gypsum slurry from said hollow connector section to said chute section; a slurry fractionating step of causing a part of the slurry effluent from said mixing area to be fractionated in said chute section and/or said hollow connector section as fractionated slurry, and feeding the fractionated slurry through said conduit to a roll coater and/or a side edge portion of said sheet of paper for gypsum board liner; and a slurry discharging step of discharging a remainder of the gypsum slurry, from which the fractionated slurry has been fractionated, through said slurry discharge port of the chute section onto a center part of the sheet of paper for gypsum board liner, wherein a core of an edge portion of the gypsum board and/or an interface portion between a core and the sheet of paper for gypsum board

liner is formed by said fractionated slurry.

Claim 18 (new): A method as defined in claim 14, further comprising a fractionated slurry agitating step of agitating said fractionated slurry with use of a slurry agitator.